IN THE CLAIMS

Please amend claims 1, 18, and 23 as set forth below.

Please cancel claims 29-31.

1. (Currently Amended) High speed high data interconnect apparatus comprising:

a stiffening plate with optical fiber mounting groove defined on a surface thereof, wherein the stiffening plate has a coefficient of thermal expansion approximately matching a coefficient of thermal expansion of the optical fiber for reducing relative movement between the stiffening plate and the optical fiber and substantially eliminating stress in the optical fiber;

a length of optical fiber with opposed ends and defining an optical path between the opposed ends, the optical fiber being mounted in the groove on the surface of the stiffening plate in a longitudinally extending direction generally parallel to the surface of the stiffening plate;

a reflecting surface positioned adjacent one of the opposed ends of the optical fiber, the reflecting surface

being positioned to direct light at an angle of approximately ninety degrees to the optical path between the opposed ends of the optical fiber; and

a printed circuit board laminate encasing the stiffening plate and the optical fiber and including a light via for the passage of light reflected by the reflecting surface, and bond pads formed on a surface of the printed circuit board laminate adjacent the light via for the electrical connection of a light element.

2. (Original) High speed data interconnect apparatus as claimed in claim 1 wherein the light element includes one of a vertical cavity surface emitting laser and a photo detector mounted on the surface of the printed circuit board laminate in light communication with the light via, using the bond pads formed adjacent the light via.

3. (Original) High speed data interconnect apparatus as claimed in claim 1 further including a second reflecting surface positioned adjacent another of the opposed ends, the second reflecting surface being positioned to direct light at an angle of approximately ninety degrees to the optical

path between the opposed ends of the optical fiber, a second light via for the passage of light reflected by the second reflecting surface, and bond pads formed on a surface of the printed circuit board laminate adjacent the second light via for the electrical connection of a second light element.

4. (Original) High speed data interconnect apparatus as claimed in claim 3 wherein the light element includes a vertical cavity surface emitting laser and the second light element includes a photo detector.

5. (Original) High speed data interconnect apparatus as claimed in claim 1 wherein the stiffening plate includes nickel iron.

6. (Original) High speed data interconnect apparatus as claimed in claim 1 wherein the printed circuit board laminate encasing the stiffening plate includes Teflon.

7. (Original) High speed data interconnect apparatus as claimed in claim 1 wherein the optical fiber mounting

groove in the stiffening plate has a generally rectangular shaped cross-section with a depth and width approximately equal to a diameter of the length of optical fiber.

8. (Original) High speed data interconnect apparatus as claimed in claim 1 wherein the optical fiber mounting groove in the stiffening plate has a shallow rectangular shaped cross-section with a depth and width smaller than a diameter of the length of optical fiber.

9. (Original) High speed data interconnect apparatus as claimed in claim 1 wherein the optical fiber mounting groove in the stiffening plate has a generally V-shaped cross-section.

10. (Original) High speed data interconnect apparatus as claimed in claim 1 wherein the reflecting surface includes a cut in the optical fiber adjacent the one of the opposed ends of the optical fiber defining a cut surface positioned at an angle of approximately 45 degrees to the optical path.

11. (Original) High speed data interconnect apparatus as claimed in claim 10 wherein the cut surface has a reflecting material positioned thereon.

12. (Original) High speed data interconnect apparatus as claimed in claim 1 wherein the reflecting surface includes a micro mirror mounted in the groove on the surface of the stiffening plate in optical alignment with the optical path and the light via.

13. (Original) High speed data interconnect apparatus as claimed in claim 1 wherein the reflecting surface includes an optical fiber portion with an approximately 45 degree mirrored end mounted in the groove on the surface of the stiffening plate in optical alignment with the optical path and the light via.

14. (Original) High speed data interconnect apparatus as claimed in claim 1 including in addition an edge emitting laser mounted in the groove on the surface of the stiffening plate in optical alignment with the optical path and a photo

detector mounted on the surface of the printed circuit board laminate in light communication with the light via, using the bond pads formed adjacent the light via.

15. (Original) High speed data interconnect apparatus as claimed in claim 1 further including a printed circuit board affixed to an edge of the stiffening plate and printed circuit board laminate adjacent another one of the opposed ends of the optical fiber, the another one of the opposed ends of the optical fiber being optically accessible at the printed circuit board.

16. (Original) High speed data interconnect apparatus as claimed in claim 1 wherein the stiffening plate has a higher Modulus of Elasticity than the laminate to constrain movement of a top surface of laminate relative to the stiffening plate.

17. (Original) High speed data interconnect apparatus as claimed in claim 16 wherein the printed circuit board laminate has a thickness in a range of up to two times a thickness of the stiffening plate.

18. (Currently Amended) High speed data interconnect apparatus comprising:

a stiffening plate with an elongated optical fiber mounting groove defined on a surface thereof, wherein the stiffening plate has a coefficient of thermal expansion approximately matching a coefficient of thermal expansion of the optical fiber for reducing relative movement between the stiffening plate and the optical fiber and substantially eliminating stress in the optical fiber;

a length of optical fiber with first and second opposed ends and defining an optical path between the opposed ends, the optical fiber being mounted in the groove on the surface of the stiffening plate in a longitudinally extending direction generally parallel to the surface of the stiffening plate;

a first reflecting surface positioned adjacent the first opposed end of the optical fiber, the first reflecting surface being positioned to direct light at an angle of approximately ninety degrees to the optical path and a second reflecting surface positioned adjacent the second

opposed end of the optical fiber, the second reflecting surface being positioned to direct light at an angle of approximately ninety degrees to the optical path;

a printed circuit board laminate encasing the stiffening plate and the optical fiber and including a first light via for the passage of light reflected by the first reflecting surface and a second light via for the passage of light reflected by the second reflecting surface, and first bond pads formed on a surface of the printed circuit board laminate adjacent the first light via and second bond pads formed on a surface of the printed circuit board laminate adjacent the second light via;

a vertical cavity surface emitting laser mounted on the surface of the printed circuit board laminate in light communication with the first light via, using the first bond pads formed adjacent the first light via; and

a photo detector mounted on the surface of the printed circuit board laminate in light communication with the second light via, using the second bond pads formed adjacent the second light via.

19. (Original) High speed data interconnect apparatus as claimed in claim 18 wherein the stiffening plate has a higher Modulus of Elasticity than the laminate to constrain movement of a top surface of laminate relative to the stiffening plate.

20. (Original) High speed data interconnect apparatus as claimed in claim 19 wherein the printed circuit board laminate has a thickness in a range of up to two times a thickness of the stiffening plate.

21. (Original) High speed data interconnect apparatus as claimed in claim 18 wherein the elongated optical fiber mounting groove includes one of a generally rectangular shaped cross-section with a depth and width approximately equal to a diameter of the length of optical fiber, a shallow rectangular shaped cross-section with a depth and width smaller than a diameter of the length of optical fiber, and a generally V-shaped cross-section.

22. (Original) High speed data interconnect apparatus as claimed in claim 18 wherein the first and second

reflecting surfaces each include one of a cut in the optical fiber adjacent one of the first and second opposed ends of the optical fiber, respectively, defining a cut surface positioned at an angle of approximately 45 degrees to the optical path and in optical alignment with the optical path and the one of the first and second light vias, respectively, a micro mirror mounted in the groove on the surface of the stiffening plate in optical alignment with the optical path and one of the first and second light vias, respectively, and an optical fiber portion with an approximately 45 degree mirrored end mounted in the groove on the surface of the stiffening plate in optical alignment with the optical path and one of the first and second light vias, respectively.

23. (Currently Amended) High speed data interconnect apparatus comprising:

a stiffening plate with an elongated optical fiber mounting groove defined on a surface thereof, the stiffening plate has a coefficient of thermal expansion approximately matching a coefficient of thermal expansion of the optical fiber for reducing relative movement between the stiffening

plate and the optical fiber and substantially eliminate stress in the optical fiber;

a length of optical fiber with first and second opposed ends and defining an optical path between the opposed ends, the optical fiber being mounted in the groove on the surface of the stiffening plate in a longitudinally extending direction generally parallel to the surface of the stiffening plate;

a printed circuit board laminate encasing the stiffening plate and the optical fiber and including a first via through the laminate and a second via through the laminate, and at least first bond pads formed on a surface of the printed circuit board laminate adjacent the first light via, and the stiffening plate has a Modulus of Elasticity higher than a Modulus of Elasticity of the laminate for constraining movement of the surface of the laminate and the first bond pads mounted thereon relative to the stiffening plate and the optical fiber; and

an optical element electrically coupled to the first bond pads and positioned adjacent the first via in optical alignment with the first end of the length of optical fiber, wherein the optical element is mounted on the first bond

pads so as to be positioned adjacent the first via in optical alignment with the first end of the length of optical fiber.

24. (Original) High speed data interconnect apparatus as claimed in claim 23 wherein the stiffening plate has a higher Modulus of Elasticity than the laminate to constrain movement of a top surface of laminate relative to the stiffening plate.

25. (Original) High speed data interconnect apparatus as claimed in claim 24 wherein the printed circuit board laminate has a thickness in a range of up to two times a thickness of the stiffening plate.

26-31 (Canceled)